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FACTORS INFLUENCING ADHERENCE TO HEMODIALYSIS IN ADULTS WITH END-STAGE RENAL DISEASE

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ABSTRACT

The management of End-Stage Renal Disease (ESRD) through hemodialysis is critical for prolonging life and enhancing the quality of life for affected individuals. Aim of the study is to assess the factors influencing adherence to hemodialysis in adults with end-stage renal disease. The study employed quantitative cross-sectional design. The study involves a sample of 150 adults receiving hemodialysis treatment at selected dialysis centers. The results of study indicate that medication adherence was lowest at 30%, while adherence to fluid intake, dietary restrictions, and treatment was 58.6%, 53.3%, and 57.3%, respectively. The adherence to hemodialysis treatment, medication and fluid restriction had significant association with demographic characteristics of patients. The findings showed poor adherence of patients towards medication. Adherence to hemodialysis treatment can be enhanced by educating patients and providing care in effective way. In this way, the quality of patient care and outcomes can be improved.

Keywords: *Adherence to Hemodialysis; End-Stage Renal Disease; Adults; Fluid Restriction; Treatment Adherence; Dietary Compliance.*

INTRODUCTION

The hemodialysis is a compulsory requirement of End-Stage Renal Disease (ESRD) patients. However, hemodialysis is a significant challenge and majority of patients failed to follow the treatment (Kim et al., 2021). There are multiple factors that influence the treatment of ESRD patients, these factors include self-efficacy, social support, and status of patients (Iqbal et al., 2021). Self-efficacy is an essential factor that directly effects the adherence levels among patients (Rasyid et al., 2022). As well as, social support showed good adherence to treatment. Socioeconomic status to patients played an essential role in adherence to treatment (Ma et al., 2021).

Healthcare providers must implement a comprehensive strategy for patient care that integrates psychological and social factors influencing treatment adherence (Alhamad et al., 2023). The educational programs for patients is an important strategy to educating them regarding their treatment and strengthen them independently (Fidan & Ağırbaş, 2023). The adherence to hemodialysis treatment is effected by different factors that cause non-adherence to treatment, fluid restriction and medication (Safitri et al., 2023).

Methodology

A descriptive cross sectional study was conducted among 150 ESRD patients who were receiving treatment at various dialysis centers. The sample size was calculated using Slovin's Formula. Data was collected from participants using convenient sampling technique. Adherence to hemodialysis scale

was used in the study. Data was collected by distributing self-structured questionnaire to participants. Patients with diagnosis of ESRD and on dialysis treatment were included in the study. ESRD patients with mental abnormality and don't want to participate in the study were excluded from study. Data was analyzed using SPSS version 25. Chi-square test was used to assess the association between adherence level and demographic factors. This comprehensive approach aims to better understand the many aspects influencing hemodialysis adherence, with the ultimate objective of guiding treatments to enhance patient compliance and health outcomes.

Results

Table 1: Socio-demographic characteristics

Variable	Category	Frequency	Percentage
Age	21-35 years	23	15.0%
	36-45 years	40	26.7%
	46-55 years	37	24.7%
	More than 55 years	50	33.3%
Gender	Male	80	55.3%
	Female	70	46.7%
Marital status	Married	95	63.3%
	Unmarried	55	36.7 %
Education	Illiterate	78	52%
	Read and write	22	14.7%
	Secondary	34	22.7%
	Higher	16	10.%
Other diseases you suffer from	Diabetes	61	40.7
	Blood pressure	34	22.7
	Heart disease	45	30
	Other	10	6.7
The period of dialysis	0-1 Year	44	29.3
	2-5 year	78	53
	More than 5 year	28	18.7

Table 1 summarizes the socio-demographic characteristics of the participants. The majority were aged over 55 years (33.3%), with smaller proportions in the 36-45 years (26.7%), 46-55 years (24.7%), and 21-35 years (15%) age groups. Male participants (55.3%) slightly outnumbered females (46.7%). Most participants were married (63.3%), while 36.7% were unmarried. Educationally, 52% were illiterate, 14.7% could read and write, 22.7% had secondary education, and 10% had higher education. Regarding comorbid conditions, 40.7% had diabetes, 30% had heart disease, 22.7% suffered from blood pressure issues, and 6.7% reported other diseases. In terms of dialysis duration, the majority (53%) had been on dialysis for 2-5 years, followed by 29.3% for 0-1 year, and 18.7% for more than 5 years. These characteristics provide an overview of the participants' demographics and health profiles.

Table 2: Hemodialysis Adherence

Hemodialysis Adherence component	Adherence n (%)	Non-adherence n (%)
Medication	45 (30%)	105 (70%)
Fluid intake	88 (58.6%)	62 (41.4%)
Dietary restriction	80 (53.3%)	70 (46.7%)
Treatment	86 (57.3%)	64 (42.7%)

Table 2 shows adherence levels among hemodialysis patients. Medication adherence was lowest at 30%, while adherence to fluid intake, dietary restrictions, and treatment was

58.6%, 53.3%, and 57.3%, respectively. Significant non-adherence, particularly with medication, highlights the need for targeted interventions.

Table 3: Association of adherence to hemodialysis Treatment with demographic factors among ESRD participants.

	Adherence to Hemodialysis Treatment X2 value	P value
Age	104.0	0.002
Gender	34.481	0.001
Marital status	44.470	0.000
Education	64.64	0.002
The Work	60.203	0.000
Other diseases	82.001	0.000
The period of dialysis	56.706	0.001

Table 3 shows significant associations between adherence to hemodialysis treatment and demographic factors among ESRD patients. Adherence was linked to age, gender, marital status, education, work status, presence of other disease, and duration of dialysis . These factors significantly influence treatment adherence.

Table 4: Association of adherence to Fluid Restriction with demographic factors among ESRD participants.

	Adherence to Fluid Restriction X2 value	P value
Age	103.55	0.001
Gender	41.854	0.002
Marital status	40.292	0.000
The Work	52.203	0.000
Other diseases	53.00	0.000
The period of dialysis	42.707	0.003

Table 4 highlights significant associations between fluid restriction adherence and demographic factors, including age, gender, marital status, work status, other diseases, and dialysis duration ($p<0.005p < 0.005p<0.005$).

Table 5: Association of adherence to Medication with demographic factors among ESRD participants.

	Adherence to Medication X2 value	P value
Age	81.505	0.002
Gender	35.846	0.001
Marital status	45.703	0.003
Education	60.631	0.000
The Work	40.203	0.001
Other diseases	72.00	0.001
The period of dialysis	36.707	0.000

Table 5 shows significant associations between medication adherence and age, gender, marital status, education, work status, other diseases, and dialysis duration ($p<0.005p < 0.005p<0.005$).

Discussion

This study found that older patients (55+ years) had higher adherence to hemodialysis, a result supported by a study that showed higher adherence to hemodialysis (Safi et al., 2024), though (Asadizaker et al., 2022) noted that younger, more educated patients might also show strong adherence. Males exhibited

slightly better adherence than females, aligning with (Tommel et al., 2021), with gender differences potentially linked to cultural and socio-economic factors. Married patients showed better adherence, consistent with (Parviniannasab et al., 2024), due to stronger social support.

Education level was inversely related to adherence, with illiterate patients showing poorer adherence, as seen in (Almutary & Tayyib, 2021). Comorbidities, particularly diabetes and heart disease, were linked to lower adherence, supporting (Bakri et al., 2022) & (Alzahrani & Al-Khattabi, 2021).. Longer dialysis durations (2-5 years) were associated with better adherence, though this contrasts with findings by (Agustina et al., 2024), who linked long-term dialysis to burnout.

Medication adherence was low (30%), consistent with (Al Muchtari et al., 2023) and (Perdana & Miaofen, 2021), highlighting the need for interventions like reminder systems. These are in agree with a study that reported moderate adherence to fluid restriction (Rahmi et al., 2024). Similar results were reported by another study (Ainun et al., 2022). (Liu et al., 2021) also supported these findings.

Conclusion

The results show that hemodialysis adherence is influenced by age, gender, marital status, education, comorbidities, and dialysis duration. Among older patients, males, married couples, and those with more education, adherence was higher. About 30% patients showed medication adherence and adherence to fluid intake was also low.

Recommendations of Study

1. education programs should be arranged for patients to improve adherence to treatment, medication and fluid restriction.
2. Nurses, doctors, and healthcare providers should provide holistic care to patients to improve the quality of care.
3. Encouraging the patients to self-manage the adherence to medical advices to properly adhere the treatment.

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